

WHAT IS CLAIMED IS:

1. An image pickup apparatus comprising:

lens group drive means for driving a lens  
group to thereby adjust every focal point of said lens  
5 group;

image pickup means for image picking-up one  
and the same subject to generate a plurality of screens  
adjacent temporally and different in exposure  
condition, said plurality of screens being synthesized  
10 to form a synthesized image;

means for detecting focal voltages from said  
plurality of screens and storing said detected focal  
voltages, said focal voltages containing high-frequency  
components included in said plurality of screens; and

15 focal voltage selecting means for selectively  
outputting one of said stored focal voltages on the  
basis of a predetermined selection criterion;

wherein automatic focusing is carried out in  
accordance with said focal voltage outputted from said  
20 focal voltage selecting means.

2. An image pickup apparatus according to Claim  
1, wherein normalization processing is carried out on  
each of said focal voltages detected from said  
plurality of screens adjacent temporally and different  
25 in exposure condition so that an influence of variation  
in said exposure condition on said focal voltages is  
eliminated.

3. An image pickup apparatus according to Claim

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1, wherein in said automatic focusing, said focal  
voltage selecting means keeps on outputting said focal  
voltage outputted at the time of starting to drive said  
lens group in a period from starting of drive of said  
5 lens group to conclusion of reaching focus to thereby  
stop moving said lens group.

4. An image pickup apparatus according to Claim  
1, wherein said focal voltage selecting means  
selectively outputs a focal voltage for focusing in  
10 accordance with magnitudes of said stored focal  
voltages inputted to said focal voltage selecting  
means.

5. An image pickup apparatus according to Claim  
1, wherein said focal voltage selecting means  
15 selectively outputs a focal voltage for focusing on the  
basis of comparison among luminance level frequency  
distributions belonging to said screens respectively  
associated with said stored focal voltages inputted to  
said focal voltage selecting means.

20 6. An image pickup apparatus according to Claim  
1, wherein said focal voltage selecting means varies  
said selection criterion in accordance with luminance  
level frequency distributions belonging to said screens  
respectively associated with said stored focal voltages  
25 inputted to said focal voltage selecting means.

7. An image pickup apparatus according to Claim  
1, wherein:

said means for storing said focal voltages

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TOP SECRET

detected from said plurality of screens extracts  
specific areas from said plurality of screens to be  
focused, on the basis of information of luminance level  
distributions expressing characteristics of said  
5 subject, or on the basis of information of substitute  
areas or a synthesizing ratio in synthesis, or on the  
basis of a combination of said information of luminance  
level distributions and said information of substitute  
areas or a synthesizing ratio, said information of  
10 luminance level distributions being obtained from said  
plurality of screens adjacent temporally and different  
in exposure condition, said information of substitute  
areas or a synthesizing ratio being obtained when said  
synthesized image is generated; said means detects  
15 focal voltages from said extracted specific areas of  
said plurality of screens; and said means stores said  
detected focal voltages.

8. An image pickup apparatus according to Claim  
1, wherein when said exposure condition associated with  
20 said focal voltage outputted from said focal voltage  
selecting means varies, an offset from the focal point  
is calculated again, and a series of control in a  
period from starting of drive of said lens group to  
stopping of the drive when a focused point is detected  
25 is performed again.

9. An image pickup apparatus comprising:  
lens group drive means for driving a lens  
group to thereby adjust every focal point of said lens

group;

image pickup means for image picking-up one and the same subject to generate a plurality of screens adjacent temporally and different in exposure

5 condition, said plurality of screens being synthesized to generate a synthesized image;

means for cutting out predetermined-sized areas from said plurality of screens respectively;

means for detecting focal voltages, which are  
10 high-frequency components contained in said areas cut out from said plurality of screens, and for storing said detected focal voltages; and

focal voltage selecting means for comparing said stored focal voltages, and selectively outputting  
15 one of said focal voltages on the basis of a predetermined selection criterion;

wherein automatic focusing is carried out in accordance with said focal voltage outputted from said focal voltage selecting means.

20 10. An image pickup apparatus according to Claim 9, wherein normalization processing is carried out on each of said focal voltages detected from said areas cut out from said plurality of screens adjacent temporally and different in exposure condition so that  
25 an influence of variation in said exposure condition or said cut-out area on said focal voltages is eliminated.

11. An image pickup apparatus according to Claim 9, wherein in said automatic focusing, said focal

TOP SECRET

voltage selecting means keeps on outputting said focal voltage outputted at the time of starting to drive said lens group in a period from starting of drive of said lens group to conclusion of reaching focus to thereby  
5 stop moving said lens group.

12. An image pickup apparatus according to Claim 9, wherein said focal voltage selecting means selectively outputs a focal voltage for focusing in accordance with magnitudes of said stored focal  
10 voltages inputted to said focal voltage selecting means.

13. An image pickup apparatus according to Claim 9, wherein said focal voltage selecting means selectively outputs a focal voltage for focusing on the  
15 basis of comparison among luminance level frequency distributions belonging to said areas cut out from said screens respectively associated with said stored focal voltages inputted to said focal voltage selecting means.

20 14. An image pickup apparatus according to Claim 9, wherein said focal voltage selecting means varies said selection criterion in accordance with luminance level frequency distributions belonging to said areas cut out from said screens respectively associated with  
25 said stored focal voltages inputted to said focal voltage selecting means.

15. An image pickup apparatus according to Claim 9, wherein when said exposure condition or said cut-out

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area associated with said focal voltage outputted from  
said focal voltage selecting means varies, an offset  
from the focal point is calculated again, and a series  
of control in a period from starting of drive of said  
5 lens group to stopping of the drive when a focused  
point is detected is performed again.

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